

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions and listings of claims in the application:

1-26. (Cancelled)

27. (Currently Amended) A method of face recognition, comprising the steps of:

providing an active infrared light to illuminate a target face when a user approaches an image capturing unit, wherein the active infrared light mounted around a lens of said image capturing unit is a near infrared (NIR) light in an invisible light spectrum;

capturing a plurality of facial images from a target face illuminated by said active NIR light, and sending a NIR facial image to a data processing unit;

localizing said face and / or eyes of said face, and cropping a portion of said facial image from said NIR facial image by said data processing unit;

extracting facial feature from said portion of said facial image;

comparing facial feature with that of previously extracted and stored in a facial image database;

outputting a recognition result obtained from said comparing step;

wherein said active NIR light comprises a plurality of flash NIR light sources, or a combination of a plurality of flash NIR light sources and a plurality of constant NIR light sources.

28. (Previously Presented) The method of claim 27, wherein a NIR filter is disposed on said image capturing unit for cutting off visible light radiation while allowing the NIR light radiation to pass through, so as to improve NIR face image acquisition.

29. **(Previously Presented)** The method of claim 27, further comprising the steps of:

detecting specular highlight reflections in eyes in said NIR face image to localize eye positions and thereby localize said face.

30. **(Previously Presented)** The method of claim 27, further comprising the steps of :

judging whether eyes and/or face is successfully localized after sending at least one facial image to a data processing unit; if yes, going forward to the next step of cropping a portion of said facial image, otherwise repeating the localizing step until eyes and/or face is successfully localized.

31. **(Previously Presented)** The method of claim 27, wherein said image capturing unit can track the movement of target face illuminated by said active NIR light.

32. **(Previously Presented)** A method for facial image acquisition, comprising the steps of:

providing a plurality of active infrared lights to illuminate a target face, wherein said active infrared light mounted around a lens of an image capturing unit is a near infrared (NIR) light in an invisible spectrum;

providing an image capturing unit for capturing NIR images of said target face, and sending / storing said NIR face images to a data processing unit used for localizing and recognizing said target face.

33. **(Previously Presented)** The method of claim 32, wherein a NIR filter is disposed on said image capturing unit for cutting off visible light radiation while allowing the NIR light radiation to pass through, so as to improve NIR face image acquisition.

34. **(Previously Presented)** An facial image acquisition apparatus used for realizing the method of claim 32, comprising an active infrared light and an image capturing unit,

wherein said image capturing unit includes a lens; and said active infrared light used for illuminating a target face comprises a plurality of active NIR lights mounted around said lens; and said image capturing unit sends at least one facial image to a data processing unit.

35. **(Cancelled)**

36. **(Previously Presented)** The apparatus of claim 34, wherein the direction of said active NIR lights is parallel to an axis of said lens.

37. **(Previously Presented)** The apparatus of claim 34, wherein said image capturing unit includes an NIR optical filter of band-wavelength-pass or long-wavelength-pass type, and it is used to suppress visible lights while allowing NIR lights to pass through so as to achieve better NIR imaging effect.

38. **(Previously Presented)** The apparatus of claim 37, wherein said NIR optical filter is an NIR optical coating or an NIR optical glass disposed on the surface or inside of said lens.

39. **(Previously Presented)** An facial image recognition apparatus used for realizing the method of claim 27, comprising an active infrared light and an image capturing unit, and a data processing unit;

wherein said image capturing unit includes a lens; and said active infrared light comprises a plurality of active NIR lights used for illuminating a target face and mounted around said lens;

said image capturing unit is used for capturing facial images and sending at least one facial image to said data processing unit;

said data processing unit comprises a PC or an embedded processor in which image processing software is installed, used for receiving images from said image capturing unit and localizing eyes and face in said facial images, and extracting facial features in said localized facial area, and comparing the extracted features with that of previously stored in a facial image database.

40. **(Cancelled)**

41. **(Previously Presented)** The apparatus of claim 39, wherein the direction of said active NIR light is parallel to axis of said lens.

42. **(Previously Presented)** The apparatus of claim 39, wherein said image capturing unit includes an NIR optical filter of band-wavelength-pass or long-wavelength-pass type, and it is used to suppress visible lights while allowing NIR lights to pass through so as to achieve better NIR imaging effect.

43. **(Previously Presented)** The apparatus of claim 39, wherein said data processing unit includes a means for detecting specular highlight reflection in each eyes in said NIR face image, it is used for localizing said eyes and face through localizing the positions of a highlight spots.

44. **(Currently Amended)** The apparatus of claim 39, wherein there is a displaying device for displaying facial images, used for adjusting the position of the target face in vertical and horizontal directions; said displaying device is a mirror ~~or an LCD (liquid crystal display)~~, mounted in such a way that its surface normal is co-axis to said lens.

45. **(Previously Presented)** The apparatus of claim 39, wherein said active NIR light can be controlled by a power switch, a proximity sensor switch or an RFID controlled switch.